

### November 2021 News PLEASE FORWARD TO YOUR COLLEAGUES

www.wikistim.org

Please encourage your colleagues to visit WIKISTIM's <u>ABOUT</u> section, which describes the site's unique resources and is accessible without registration.

### A FEW WORDS

Each month, I write a few paragraphs to introduce this newsletter (Dr. North and I would welcome submissions for a guest commentary to appear in this space). This month, as I searched for words, I thought about how Dr. North just delivered an online talk for the Johns Hopkins Blaustein Pain Ground Rounds on "What's New in Spinal Cord and Peripheral Nerve Stimulation" that highlighted how the terminology we use to describe implanted stimulation has expanded to include conventional, tonic, closed-loop, sub-perception, high frequency, digiceutical, burst, high density, differential target multiplexed SCS, and pulse dosing. This made me realize that words could be my topic.

The second thing that prompted me to think about words was the fact that the Merriam-Webster dictionary now includes "LOL" because this acronym for "laughing out loud" started to appear in respected publications. The fact that appearing in a publication is enough for a new word to earn dictionary-level status underscores the importance of the glossary we just created as a joint project of our foundation, the Institute of Neurostimulation, and the International Neuromodulation Society. Without a glossary to document agreement about the language we use, each of the many journals that publish in our field might allow different terms to appear for the same thing, which would sow confusion. We are pleased to note that access to our glossary, which will appear soon in the journal *Neuromodulation*, will be free (or, to use the current term, "open-access"). Eventual online publication of our glossary on our various websites will include updates and revisions.

Finally, the new vocabulary arising from developments in our field emphasizes the important of our foundation's effort to update (and expand to DRG, PNS, and angina) our 2007 *Practice Parameters for the Use of Spinal Cord Stimulation in the Treatment of Chronic Neuropathic Pain*.

## PLEASE CONSIDER DONATING TO WIKISTIM

The Neuromodulation Foundation, Inc., which brings you WIKISTIM free of charge, relies on grants and public support for its existence. Please visit our <u>DONATE</u> page to make a contribution and join our distinguished list of supporters.

#### **MEMBERSHIP**

In October, the number of our subscribers grew to 1537. Thank you for helping to spread the word!

## CITATIONS ADDED FROM SEARCH ON OCTOBER 26, 2021 (if necessary, please click "View Entire Message")

Note: We provide payroll-protected full-text links as a courtesy only for "our" journal, <u>Neuromodulation</u>. All other full-text links are "Free Full Text" (including, of course, open-access papers in <u>Neuromodulation</u>. If the link to a PDF downloads immediately or has a "watermark," we link to the link rather than to the PDF.

## Deep Brain Stimulation (now 6534 citations)

- 1. Alugolu R, Kolpakwar S, Mudumba V, Arora A, Kandadai R, Borgohain R. **Prospective** analysis of gross and fine motor manifestations following STN-DBS and their correlation with electrode position. J Neurosurg Sci 2021 epub <u>PubMed</u>
- Anderson RW, Wilkins KB, Parker JE, Petrucci MN, Kehnemouyi Y, Neuville RS, Cassini D, Trager MH, Koop MM, Velisar A, Blumenfeld Z, Quinn EJ, Henderson J, Bronte-Stewart HM. Lack of progression of beta dynamics after long-term subthalamic neurostimulation. Ann Clin Transl Neurol 2021 epub PubMed Free Full Text
- Avecillas-Chasin JM, Jimenez-Shahed J, Miravite J, Bressman S, Kopell BH. Deep brain stimulation of the pallidofugal pathways to rescue severe life-threatening dyskinesias after STN-DBS lead implantation. Stereotact Funct Neurosurg 2021 epub:1-4 <u>PubMed</u>
- 4. Azghadi A, Rajagopal MM, Atkinson KA, Holloway KL. Utility of GPI+VIM dual-lead deep brain stimulation for Parkinson's disease patients with significant residual tremor on medication. J Neurosurg 2021 epub:1-7 PubMed
- 5. Baizabal-Carvallo JF, Alonso-Juarez M, Jankovic J. **Self-injurious behavior in Tourette syndrome.** J Neurol 2021 epub <u>PubMed</u>
- Besse-Pinot E, Pereira B, Durif F, Fantini ML, Durand E, Debilly B, Derost P, Moreau C, Hainque E, Rouaud T, Eusebio A, Benatru I, Drapier S, Guehl D, Rascol O, Maltête D, Lagha-Boukbiza O, Giordana C, Tir M, Thobois S, Hopes L, Hubsch C, Jarraya B, Rolland AS, Corvol JC, Devos D, Marques A; Predistim study group. Preoperative REM sleep behavior disorder and subthalamic deep brain stimulation outcome in Parkinson disease 1 year after surgery.Neurology 2021 epub <u>PubMed</u>
- Bocci T, Prenassi M, Arlotti M, Cogiamanian FM, Borrellini L, Moro E, Lozano AM, Volkmann J, Barbieri S, Priori A, Marceglia S. Eight-hours conventional versus adaptive deep brain stimulation of the subthalamic nucleus in Parkinson's disease. NPJ Parkinsons Dis 2021 7(1):88 <u>PubMed Free Full Text</u>
- Chacón Gámez YM, Brugger F, Biller-Andorno N. Parkinson's disease and deep brain stimulation have an impact on my life: a multimodal study on the experiences of patients and family caregivers. Int J Environ Res Public Health 2021 18(18):9516 <u>PubMed Free Full Text</u>
- Furlanetti L, Hasegawa H, Hulse N, Morris-Jones R, Ashkan K. Chronic itch induced by thalamic deep brain stimulation: a case for a central itch centre. J Transl Med 2021 19(1):430 PubMed Free Full Text
- 10. García-Rubio MI, Otero-Cerdeira ME, Toledo-Lozano CG, Alcaraz-Estrada SL, Suárez-Cuenca JA, Coral-Vázquez RM, Mondragón-Terán P, Pineda-Juárez JA, Díaz-López LF, García S. Analysis of impulse control disorders (ICDs) and factors associated with their development in a Parkinson's disease population. Healthcare (Basel) 2021 9(10):1263 <u>PubMed Free Full Text</u>
- 11. Greif TR, Áskari A, Cook Maher A, Patil PG, Persad C. Anterior lead location predicts verbal fluency decline following STN-DBS in Parkinson's disease. Parkinsonism Relat Disord 2021 92:36-40 PubMed
- 12. Hacker M, Cannard G, Turchan M, Meystedt J, Davis T, Phibbs F, Hedera P, Konrad P, Charles D. Early subthalamic nucleus deep brain stimulation in Parkinson's disease reduces long-term medication costs. Clin Neurol Neurosurg 2021 210:106976 <u>PubMed</u>
- 13. Heminghyt E, Herrman H, Skogan AH, Konglund A, Egge A, Lossius M, Dietrichs E, Taubøll E. Cognitive change after DBS in refractory epilepsy: a randomizedcontrolled trial. Acta Neurol Scand 2021 epub <u>PubMed Free Full Text</u>

- 14. Hinkley LBN, Larson PS, Henderson Sabes J, Mizuiri D, Demopoulos C, Adams ME, Neylan TC, Hess CP, Nagarajan SS, Cheung SW. Striatal networks for tinnitus treatment targeting. Hum Brain Mapp 2021 epub <u>PubMed Free Full Text</u>
- 15. Hitti FL, Cristancho MA, Yang AI, O'Reardon JP, Bhati MT, Baltuch GH. Deep brain stimulation of the ventral capsule/ventral striatum for treatment-resistant depression: a decade of clinical follow-up. J Clin Psychiatry 2021 82(6):21m13973 <u>PubMed</u>
- 16. House PM, Herzer A, Lorenzi I, Niedernhöfer P, Voges B, Stodieck S, Westphal M, Schaper M, Koeppen JA, Hamel W. Deep brain stimulation (DBS) of anterior nucleus thalami (ANT) in female epilepsy patients during pregnancy and delivery: experience from two cases. Epileptic Disord 2021 epub PubMed
- 17. Huang LC, Chen LG, Wu PA, Pang CY, Lin SZ, Tsai ST, Chen SY. Effect of deep brain stimulation on brain network and white matter integrity in Parkinson's disease. CNS Neurosci Ther 2021 epub <u>PubMed Free Full Text</u>
- 18. Johansson JD. Estimation of electric field impact in deep brain stimulation from axon diameter distribution in the human brain. Biomed Phys Eng Express 2021 7(6) <u>PubMed Free Full Text</u>
- 19. Khaledi-Nasab A, Kromer JA, Tass PA. Long-lasting desynchronization effects of coordinated reset stimulation improved by random jitters. Front Physiol 2021 12:719680 PubMed Free Full Text
- 20. Knowles T, Adams SG, Jog M. Speech rate mediated vowel and stop voicing distinctiveness in Parkinson's disease. J Speech Lang Hear Res 2021 epub:1-28 PubMed
- 21. Krämer SD, Schuhmann MK, Schadt F, Israel I, Samnick S, Volkmann J, Fluri F. Changes of cerebral network activity after invasive stimulation of the mesencephalic locomotor region in a rat stroke model. Exp Neurol 2021 347:113884 PubMed
- 22. Li H, Su D, Lai Y, Xu X, Zhang C, Sun B, Li D, Pan Y. **Recharging difficulty with pulse generator after deep brain stimulation: a case series of five patients.** Front Neurosci 2021 15:705483 <u>PubMed Free Full Text</u>
- 23. Li JM, Li N, Wang J, Wang X, Su MM, Zheng CH, Qiu C, Luo T, Wang XL. Analysis of long-term efficacy and influencing factors of subthalamic nuclear stimulation for isolated dystonia. Chinese. Zhonghua Yi Xue Za Zhi 2021 101(5):350-354 <u>PubMed Free Full Text</u>
- 24. Listik C, Cury RG, Casagrande SCB, Listik E, Arnaut D, Santiago N, Da Silva VA, Galhardoni R, Machado JLA, de Almeida JC, Barbosa ER, Teixeira MJ, De Andrade DC. Improvement of non-motor symptoms and quality of life after deep brain stimulation for refractory dystonia: a 1-year follow-up. Front Neurol 2021 12:717239 PubMedFree Full Text
- 25. Marano M, Fasano A. Subthalamic nucleus deep brain stimulation as rescue therapy for levodopa carbidopa intestinal gel-associated biphasic-like dyskinesias. Mov Disord Clin Pract 2021 8(7):1155-1156 PubMed
- 26. Middlebrooks EH, Okromelidze L, Wong JK, Eisinger RS, Burns MR, Jain A, Lin HP, Yu J, Opri E, Horn A, Goede LL, Foote KD, Okun MS, Quiñones-Hinojosa A, Uitti RJ, Grewal SS, Tsuboi T. Connectivity correlates to predict essential tremor deep brain stimulation outcome: evidence for a common treatment pathway. Neuroimage Clin 2021 32:102846 PubMed Free Full Text
- 27. Muller J, Alizadeh M, Matias CM, Thalheimer S, Romo V, Martello J, Liang TW, Mohamed FB, Wu C. Use of probabilistic tractography to provide reliable distinction of the motor and sensory thalamus for prospective targeting during asleep deep brain stimulation. J Neurosurg 2021 epub:1-10 PubMed

- 28. Muthuraman M, Palotai M, Jávor-Duray B, Kelemen A, Koirala N, Halász L, Erőss L, Fekete G, Bognár L, Deuschl G, Tamás G. Frequency-specific network activity predicts bradykinesia severity in Parkinson's disease. Neuroimage Clin 2021 32:102857 PubMed Free Full Text
- 29. Naesström M, Johansson J, Hariz M, Bodlund O, Wårdell K, Blomstedt P. Distribution of electric field in patients with obsessive compulsive disorder treated with deep brain stimulation of the bed nucleus of stria terminalis. Acta Neurochir (Wien) 2021 epub PubMed Free Full Text
- 30. Nie Y, Luo H, Li X, Geng X, Green AL, Aziz TZ, Wang S. **Subthalamic dynamic neural states correlate with motor symptoms in Parkinson's disease.** Clin Neurophysiol 2021 132(11):2789-2797 <u>PubMed</u>
- 31. Oudijn MS, Mocking RJT, Wijnker RR, Lok A, Schuurman PR, van den Munckhof P, van Elburg AA, Denys DAPJ. Deep brain stimulation of the ventral anterior limb of the capsula interna in patients with treatment-refractory anorexia nervosa. Brain Stimul 2021 14(6):1528-1530 PubMed Free Full Text
- 32. Ramasubbu R, McAusland L, Chopra S, Clark DL, Bewernick BH, Kiss ZHT. Personality changes with subcallosal cingulate deep brain stimulation in patients with treatment-resistant depression. J Psychiatry Neurosci 2021 46(4):E490-E499 <u>PubMed Free Full Text</u>
- 33. Runge J, Nagel JM, Schrader C, Saryyeva A, Krauss JK. **Rechargeable pacemaker** technology in deep brain stimulation: a step forward, but not for everyone. Mov Disord Clin Pract 2021 8(7):1112-1115 <u>PubMed Free Full Text</u>
- 34. Saleh C, Meyer A, Chaturvedi M, Beltrani S, Gschwandtner U, Fuhr P. Does quantitative electroencephalography refine preoperative cognitive assessment in Parkinson's disease patients treated with deep brain stimulation? A follow-up study. Dement Geriatr Cogn Disord 2021 epub:1-8 <u>PubMed Free Full Text</u>
- 35. Scangos KW, Khambhati AN, Daly PM, Makhoul GS, Sugrue LP, Zamanian H, Liu TX, Rao VR, Sellers KK, Dawes HE, Starr PA, Krystal AD, Chang EF. **Closed-loop neuromodulation in an individual with treatment-resistant depression.** Nat Med 2021 27(10):1696-1700 <u>PubMed</u>
- 36. Sedov A, Popov V, Gamaleya A, Semenova U, Tomskiy A, Jinnah HA, Shaikh AG. Pallidal neuron activity determines responsiveness to deep brain stimulation in cervical dystonia. Clin Neurophysiol 2021 epub PubMed
- 37. Shi L, Fan S, Yuan T, Fang H, Zheng J, Xiao Z, Diao Y, Zhu G, Zhang Q, Liu H, Zhang H, Meng F, Zhang J, Yang A. Microstimulation is a promising approach in achieving better lead placement in subthalamic nucleus deep brain stimulation surgery. Front Neurol 2021 12:683532 PubMed Free Full Text
- 38. Shi L, Yuan T, Fan S, Zheng J, Diao Y, Qin G, Liu D, Zhu G, Qin K, Liu H, Zhang H, Yang A, Meng F, Zhang J. Comparison of cognitive performance between patients with Parkinson's disease and dystonia using an intraoperative recognition memory test. Sci Rep 2021 11(1):20724 <u>PubMed Free Full Text</u>
- 39. Siddiqui MS, Jimenez-Shahed J, Mari Z, Walter BL, De Jesus S, Panov F, Schwalb JM, York MK, Sarva H, Bertoni JM, Patel N, Zhang L, McInerney J, Rosenow JM. North American survey on impact of the COVID-19 pandemic shutdown on DBS care. Parkinsonism Relat Disord 2021 92:41-45 <u>PubMed Free Full Text</u>
- 40. Spix TA, Nanivadekar S, Toong N, Kaplow IM, Isett BR, Goksen Y, Pfenning AR, Gittis AH. **Population-specific neuromodulation prolongs therapeutic benefits of deep brain stimulation.** Science 2021 374(6564):201-206 PubMed
- 41. Stieglitz LH, Hofer AS, Bolliger M, Oertel MF, Filli L, Willi R, Cathomen A, Meyer C, Schubert M, Hubli M, Kessler TM, Baumann CR, Imbach L, Krüsi I, Prusse A, Schwab ME, Regli L, Curt A. **Deep brain stimulation for locomotion in incomplete human**

spinal cord injury (DBS-SCI): protocol of a prospective one-armed multi-centre study. BMJ Open 2021 11(9):e047670 PubMed Free Full Text

- 42. Thomson CJ, Segrave RA, Fitzgerald PB, Richardson KE, Racine E, Carter
  A. 'Nothing to lose, absolutely everything to gain': patient and caregiver
  expectations and subjective outcomes of deep brain stimulation for treatmentresistant depression. Front Hum Neurosci 2021 15:755276 PubMed Free Full Text
- 43. Visanji NP, Ghani M, Yu E, Kakhki EG, Sato C, Moreno D, Naranian T, Poon YY, Abdollahi M, Naghibzadeh M, Rajalingam R, Lozano AM, Kalia SK, Hodaie M, Cohn M, Statucka M, Boutet A, Elias GJB, Germann J, Munhoz R, Lang AE, Gan-Or Z, Rogaeva E, Fasano A. Axial Impairment following deep brain stimulation in Parkinson's disease: a surgicogenomic approach. J Parkinsons Dis 2021 epub <u>PubMed</u>
- 44. Widge AS, Zhang F, Gosai A, Papadimitrou G, Wilson-Braun P, Tsintou M, Palanivelu S, Noecker AM, McIntyre CC, O'Donnell L, McLaughlin NCR, Greenberg BD, Makris N, Dougherty DD, Rathi Y. Patient-specific connectomic models correlate with, but do not reliably predict, outcomes in deep brain stimulation for obsessive-compulsive disorder. Neuropsychopharmacology 2021 epub PubMed
- 45. Yalaz M, Deuschl G, Sohail Noor M, Butz M, Schnitzler A, Helmers AK, Höft
  M. Determining the rotational orientation of directional deep brain stimulation electrodes using magnetoencephalography. J Neural Eng 2021 18(5) <u>PubMed</u>
- 46. Youssef NA, Dela Cruz SAMF, Riva-Posse P, Patel RS. Characteristics of patients who had deep brain stimulation for treatment-resistant depression from among 116,890 inpatients with major depressive disorder. Ann Clin Psychiatry 2021 33(4):251-257 PubMed
- 47. Zamora M, Meller S, Kajin F, Sermon JJ, Toth R, Benjaber M, Dijk DJ, Bogacz R, Worrell GA, Valentin A, Duchet B, Volk HA, Denison T. **Embedding 'digital chronotherapy' into medical devices—a canine validation for controlling status epilepticus through multi-scale rhythmic brain stimulation.** Front Neurosci 2021 epub <u>PubMed Free Full Text</u>
- 48. Zhu Y, Wang J, Li H, Liu C, Grill WM. Adaptive parameter modulation of deep brain stimulation based on improved supervisory algorithm. Front Neurosci 2021 epub <u>PubMed Free Full Text</u>

# *Dorsal Root Ganglion Stimulation (now 208 citations, with 9 completed WIKISTIM abstracts)*

- 1. Bral P, Smet I, Jerjir A, Devos M, Van Buyten JP. **Dorsal root ganglion stimulation for patients with refractory pain due to anterior cutaneous nerve entrapment syndrome: a case series.** Pain Pract 2021 epub <u>PubMed</u>
- Dalrymple AN, Ting JE, Bose R, Nieuwoudt S, Franke M, Ludwig KA, Shoffstall AJ, Fisher LE, Weber DJ. Recruitment of primary afferents by dorsal root ganglion stimulation using the Injectrode. Int IEEE EMBS Conf Neural Eng 2021 2021:609-612 <u>PubMed Free Full Text</u>
- 3. Dalrymple AN, Ting JE, Bose R, Trevathan JK, Nieuwoudt S, Lempka S, Franke M, Ludwig K, Shoffstall AJ, Fisher LE, Weber DJ. **Stimulation of the dorsal root** ganglion using an Injectrode®. J Neural Eng 2021 epub <u>PubMed Free Full Text</u>

## Gastric Electrical Stimulation (now 513 citations)

1. Cao J, Wang X, Powley TL, Liu Z. Gastric neurons in the nucleus tractus solitarius are selective to the orientation of gastric electrical stimulation. J Neural Eng 2021 epub <u>PubMed</u>

## Peripheral Nerve Stimulation (now 582 citations, with 6 completed WIKISTIM abstracts)

- Centemero A, Rigatti L, Giraudo D, Mantica G, De Marchi D, Chiarulli EF, Gaboardi F. The role of the multi-disciplinary team and multi-disciplinary therapeutic protocol in the management of the chronic pelvic pain: there is strenght [sic] in numbers! Arch Ital Urol Androl 2021 93(2):211-214 <u>PubMed Free Full Text</u>
- Frederick RA, Troyk PR, Cogan SF. Wireless microelectrode arrays for selective and chronically stable peripheral nerve stimulation for hindlimb movement. J Neural Eng 2021 18(5) <u>PubMed</u>
- Lashin AM, Eltabey NA, Wadie BS. Percutaneous tibial nerve stimulation versus sham efficacy in the treatment of refractory overactive bladder: outcomes following a shortened 6-week protocol, a prospective randomized controlled trial. Int Urol Nephrol 2021 epub <u>PubMed</u>
- 4. Liu DY, Chen JS, Lin CY, Gong QJ, Zhao Q, Wan L. Subcutaneous peripheral nerve stimulation for treatment of acute/sub-acute herpes zoster-related trigeminal neuralgia: a retrospective research. Clin J Pain 2021 epub PubMed
- Seinen AJ, Elburg R, Hollegien LM, Blanker MH, Witte LPW. The patient pathway for overactive bladder management: a quantitative analysis. Neurourol Urodyn 2021 epub <u>PubMed</u>
- Zeno A, Handler SJ, Jakus-Waldman S, Yazdany T, Nguyen JN. Percutaneous tibial nerve stimulation in diabetic and nondiabetic women with overactive bladder syndrome: a retrospective cohort study. Female Pelvic Med Reconstr Surg 2021 epub <u>PubMed</u>

## *Spinal Cord Stimulation (now 2793 citations, with 133 completed or partially completed WIKISTIM abstracts)*

- Akkemik Ü, Onay M, Güleç MS. Effectiveness of interventional procedures for post-laminectomy syndrome: a retrospective study. Agri 2021 33(4):253-260 <u>PubMed Free Full Text</u>
- Hachmann JT, Yousak A, Wallner JJ, Gad PN, Edgerton VR, Gorgey AS. Epidural spinal cord stimulation as an intervention for motor recovery after motor complete spinal cord injury. J Neurophysiol 2021 epub <u>PubMed</u>
- Hasoon J, Urits I, Viswanath O, Varrassi G, Simopoulos TT, Kohan L, Gutierrez G, Orhurhu V, Aner M, Gill J. Percutaneous spinal cord stimulation lead placement under deep sedation and general anesthesia. Pain Ther 2021 epub <u>PubMed Free</u> <u>Full Text</u>
- Kallewaard JW, Paz-Solis JF, De Negri P, Canós-Verdecho MA, Belaid H, Thomson SJ, Abejón D, Vesper J, Mehta V, Rigoard P, Maino P, Love-Jones S, Peña IF, Bayerl S, Perruchoud C, Bougeard R, Mertz C, Pei Y, Jain R. Real-world outcomes using a spinal cord stimulation device capable of combination therapy for chronic pain: a European, multicenter experience. J Clin Med 2021 10(18):4085 <u>PubMed Free Full</u> <u>Text</u>
- Provenzano D, Tate J, Gupta M, Yu C, Verrills P, Guirguis M, Harrison N, Smith T, Azalde R, Bradley K. Pulse dosing of 10 kHz paresthesia-independent spinal cord stimulation provides same efficacy with substantial reduction of device recharge time. Pain Med 2021 pnab288 <u>PubMed Free Full Text</u>
- Ren BO, O'Donnell JA, Anderson JT, Haas AR, Percy R, Woods ST, Ahn UM, Ahn NU. The impact of smoking in workers' compensation patients receiving spinal cord stimulation. J Surg Orthop Adv 2021 30(3):185-189 <u>PubMed</u>
- 7. Rogers ER, Zander HJ, Lempka SF. Neural recruitment during conventional, burst, and 10-kHz spinal cord stimulation for pain. J Pain 2021 epub PubMed

- Rojo E, Pérez Hernández C, Sánchez Martínez N, Margarit AC, Blanco Arias T, Muñoz Martínez M, Crespo C, Ochoa Mazarro D. Real-world cost-effectiveness analysis of spinal cord stimulation vs conventional therapy in the management of failed back surgery syndrome. J Pain Res 2021 14:3025-3032 <u>PubMed Free Full Text</u>
- Siddiqui AM, Islam R, Cuellar CA, Silvernail JL, Knudsen B, Curley DE, Strickland T, Manske E, Suwan PT, Latypov T, Akhmetov N, Zhang S, Summer P, Nesbitt JJ, Chen BK, Grahn PJ, Madigan NN, Yaszemski MJ, Windebank AJ, Lavrov IA. Newly regenerated axons via scaffolds promote sub-lesional reorganization and motor recovery with epidural electrical stimulation. NPJ Regen Med 2021 6(1):66 PubMed Free Full Text
- 10. Wang J, Wu XC, Zhang MM, Ren JH, Sun Y, Liu JZ, Wu XQ, He SY, Li YQ, Zhang JB. Spinal cord stimulation reduces cardiac pain through microglial deactivation in rats with chronic myocardial ischemia. Mol Med Rep 2021 24(6):835 PubMed Free Full Text

## Sacral Nerve Stimulation (now 1097 citations)

 Majerus SJA, Offutt SJ, Brink TS, Vasoli V, Mcadams I, Damaser MS, Zirpel L. Feasibility of real-time conditional sacral neuromodulation using wireless bladder pressure sensor. IEEE Trans Neural Syst Rehabil Eng 2021 29:2067-2075 <u>PubMed Free Full Text</u>

## IF WIKISTIM SAVES YOU TIME. . . WIKISTIM SAVES YOU MONEY!

The existence of WIKISTIM depends entirely on the support of individuals and organizations, and the Internal Revenue Service judges our suitability to continue as a 501(c)(3) non-profit charitable corporation based on the level of public support we receive. Contributions to *The Neuromodulation Foundation* are tax-deductible for United States tax-payers aged 70 1/2 who contribute directly from an Individual Retirement Account or for those who itemize deductions. While we aren't operating at the level where we can afford to collect donations via credit cards, the PAYPAL option on the <u>DONATE</u> page is available for your convenience, or you may, of course, ask your bank to send a check to *The Neuromodulation Foundation, Inc.*, 117 East 25th Street, Baltimore, MD 21218. We'd love to add your name to our list of financial supporters below!

#### Individual supporters 2019-21:

Thomas Abell, MD Kenneth Chapman, MD The Donlin & Harriett Long Family Charitable Gift Fund Richard B. North, MD B. Todd Sitzman, MD, MPH Konstantin Slavin, MD, PhD

Industry support 2019-21: Medtronic Stimwave

#### Nonprofit support:

The North American Neuromodulation Society (publicity, conference registration, grant) The International Neuromodulation Society (publicity and conference registration) The Neuromodulation Foundation, Inc. (WIKISTIM's parent organization)

#### EDITORIAL BOARD

Editor-in-chief Richard B. North, MD

#### Section editors

<u>Thomas Abell, MD</u>, Gastric Electrical Stimulation Tracy Cameron, PhD, Peripheral Nerve Stimulation Robert Foreman, MD, PhD, Experimental Studies <u>Elliot Krames, MD</u>, Dorsal Root Ganglion Stimulation <u>Bengt Linderoth, MD, PhD</u>, Experimental Studies <u>Richard B. North, MD</u>, Spinal Cord Stimulation B. Todd Sitzman, MD, MPH, At Large <u>Konstantin Slavin, MD, PhD</u>, Deep Brain Stimulation <u>Kristl Vonck, MD, PhD</u>, Deep Brain Stimulation for Epilepsy Richard Weiner, MD, Peripheral Nerve Stimulation Jonathan Young, MD, Noninvasive Brain Stimulation To be determined, Vagus Nerve Stimulation>

#### **Managing editor**

Jane Shipley

#### Disclosure

WIKISTIM includes citations for indications that are or might be considered off-label in the United States.

#### A reminder about personal information

We never share our registrants' personal information or email addresses.

#### CONTACT

The Neuromodulation Foundation, Inc. 117 East 25th Street Baltimore, MD 21218

wikistim@gmail.com